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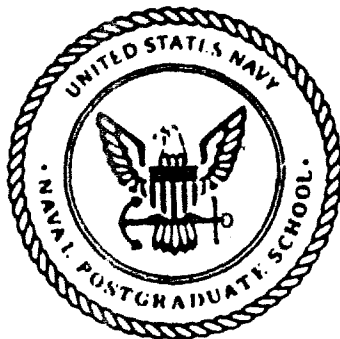
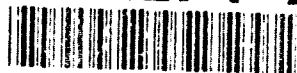
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THESIS

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THE FEASIBILITY OF LONG-TERM CONTRACTING
IN THE DEPARTMENT OF DEFENSE

by

Gregory F. Breen

June 1993

Thesis Advisor

Rebecca Adams

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**The Feasibility of Long-Term Contracting
in the Department of Defense**

by

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Submitted in partial fulfillment
of the requirements for the degree of

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from the

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The research concludes that although DoD does face greater barriers (primarily due to Government procurement practices and regulations concerning competition and budgeting) than commercial buying organizations; there are enough contracting types and arrangements, as well as special contracting methods available which allows those DoD activities, which so desire, to still establish long-term relationships with suppliers.

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I. INTRODUCTION

A. BACKGROUND

In this period of austere budgeting in the Department of Defense (DoD) it is increasingly important that money appropriated for procurement is spent wisely and results in timely delivery of quality products at reasonable prices. One way to accomplish this objective is through effective source selection. A very important tool available to individuals involved in this process is the use of long-term contracting. Although this concept has been proven successful by private industry, it appears to fly in the face of traditional Government procurement. One would think that current Government contracting practices and regulations concerning competition and budgeting would impede the Government's ability to use a long-term approach to the procurement of goods and services.

In spite of these potential barriers, many Government agencies are attempting to use this method when it makes sense to do so from an economical or quality standpoint. For instance, DoD, as a result of rising costs, budgetary pressures, and reduced quantity requirements has been exploring the use of long-term contracting over the past few years.

B. RESEARCH OBJECTIVE

The objective of the thesis is to determine to what extent current Government procurement practices and regulations concerning competition and budgeting actually affect DoD's ability to utilize a long-term contracting approach and to identify any successful long-term contracting "lessons learned" that can be used by DoD activities. In order to accomplish this objective, the thesis is designed to examine certain issues surrounding the use of long-term contracting by both private industry and the Government and to apply this information in a way that will be beneficial to DoD, as well as possibly other Government contracting activities.

C. RESEARCH QUESTION

Given the preceding objective, the following primary research question was posed during this study: To what extent is long-term contracting by DoD feasible (considering current Government procurement practices and regulations concerning competition and budgeting)?

Subsidiary research questions are as follows:

- 1) What is long-term contracting?
- 2) What are the advantages and disadvantages of long-term contracts?
- 3) What are the major influences on long-term contracting?
- 4) In the Government, what are the long-term contract types available, long-term contract techniques available, and general impediments to long-term contracting?

- 5) What types of goods and services, contract types and pricing arrangements, incentives, and unique contracting arrangements lend themselves to long-term contracting?
- 6) What are the most common characteristics of successful long-term contracts?

D. SCOPE, LIMITATIONS, AND ASSUMPTIONS

This thesis is divided into two main parts. The first part reviews and analyzes long-term contracting from a broad perspective. In particular, discussing what it is, its purpose, and its history; looking at its benefits and drawbacks; reviewing the influences on it; and exploring its general applicability in the Government.

The second part specifically focuses on the identification and characterization of barriers which may be restricting DoD's ability to use a long-term contracting approach; and if so, how these barriers can best be overcome, by comparing DoD's long-term contracting practices to long-term contracting practices of private industry (specifically companies that specialize in both commercial and defense related work).

The thesis is limited by the participation of a relatively small number of private buying organizations. The sample size used (130 companies) is probably not large enough to be able to infer conclusions about all American businesses. However, the sample is a good representation of companies that specialize in both commercial and defense related work.

It is assumed that the reader is familiar with Government procurement practices and policies, as well as with basic laws and regulations that affect Government procurement (e.g., Competition in Contracting Act, Federal Acquisition Regulation, etc.).

E. METHODOLOGY

The methodology that the researcher employed consists of the following steps: (1) review of pertinent literature, (2) survey of senior procurement officials working for companies involved in both commercial and defense related work, (3) survey of senior procurement officials in major DoD buying offices, (4) follow-up telephone interviews with selected individuals from private industry, and (5) follow-up telephone interviews with selected individuals from DoD.

F. THESIS ORGANIZATION

This thesis is organized into four chapters. The first chapter is an introduction to the thesis.

Chapter II presents the findings of the comprehensive literature review conducted. The discussion focuses on the information concerning long-term contracting which the researcher discussed in Section D.

Chapter III presents the data collected for this research through surveys, follow-up telephone interviews, and

literature provided by participants in this study. An interpretation and analysis of the data is also presented.

Chapter IV provides the researcher's conclusions and recommendations along with areas that might merit further research.

II. LITERATURE REVIEW

A. BACKGROUND

During approximately the past ten years there has been a fundamental change taking place in the way purchasing is being conducted. Recently, logistical concepts such as just-in-time, material requirements planning, early supplier involvement, best value, zero-defects, win-win negotiating, and total quality management have caused organizations to re-examine purchasing's role in the organization, as well as to re-examine traditional purchasing methods. In oversimplified terms, these changes add up to a movement in which purchasing is becoming more and more a "materials management profession."

In the past, contracting personnel tended to be compartmentalized in an organization and were usually just responsible for providing material and services in a timely manner at the lowest purchased cost. Today, however, as materials become more expensive and logistical methods more scientific, contracting personnel are assuming greater responsibility for improving the overall efficiency and effectiveness of organizations. In this environment, purchasing officials must work closely with other departments in order to maximize the organization's goals. For private industry this may mean profitability, competitiveness, or increased market share. For public organizations, such as

DoD, it may mean the reliability and effectiveness of a particular weapon system.

Nevertheless, no matter what the goals are, both the public and private sectors have discovered that supplier involvement can assist the organization significantly in meeting its goals and for implementing the logistical concepts discussed in the first paragraph. As a result, contracting professionals are turning to long-term contracting methods in order to buy suppliers' expertise, as well as suppliers' products. For example, a study by the Defense Systems Management College 1988-89 Military Research Fellows entitled, "Using Commercial Practices in DoD Acquisition: A Page from Industry's Playbook," found that companies are adopting more cooperative relationships with their suppliers. [Ref. 1:p. 59] Specifically, they found that every company interviewed had partnerships with suppliers to some degree. In addition, *Purchasing*, a journal of the commercial purchasing profession, reported in a 1988 article, [Ref. 2:p. 23] that 67 percent of companies surveyed had long-term relationships with suppliers (Figure 2.1), while a follow-up survey in 1992, [Ref. 3:p. 50] found that this percentage had increased to 79 percent (Figure 2.2).

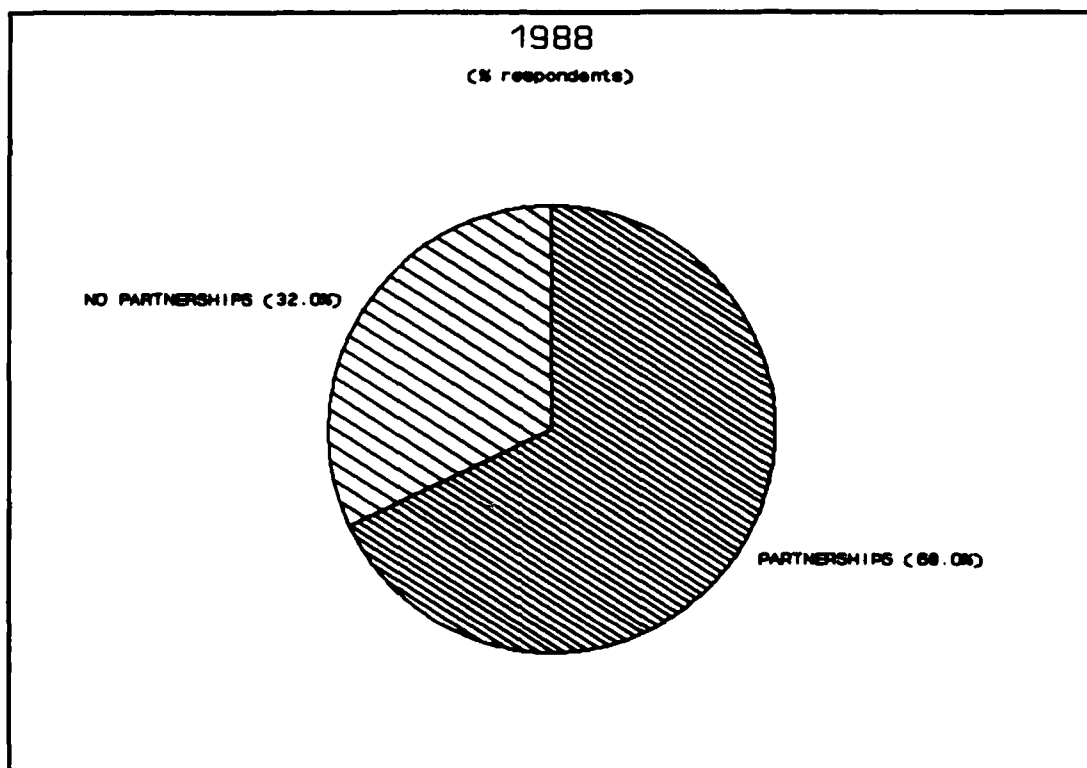


Figure 2.1; 1988 Percentage of Long-Term Relationships

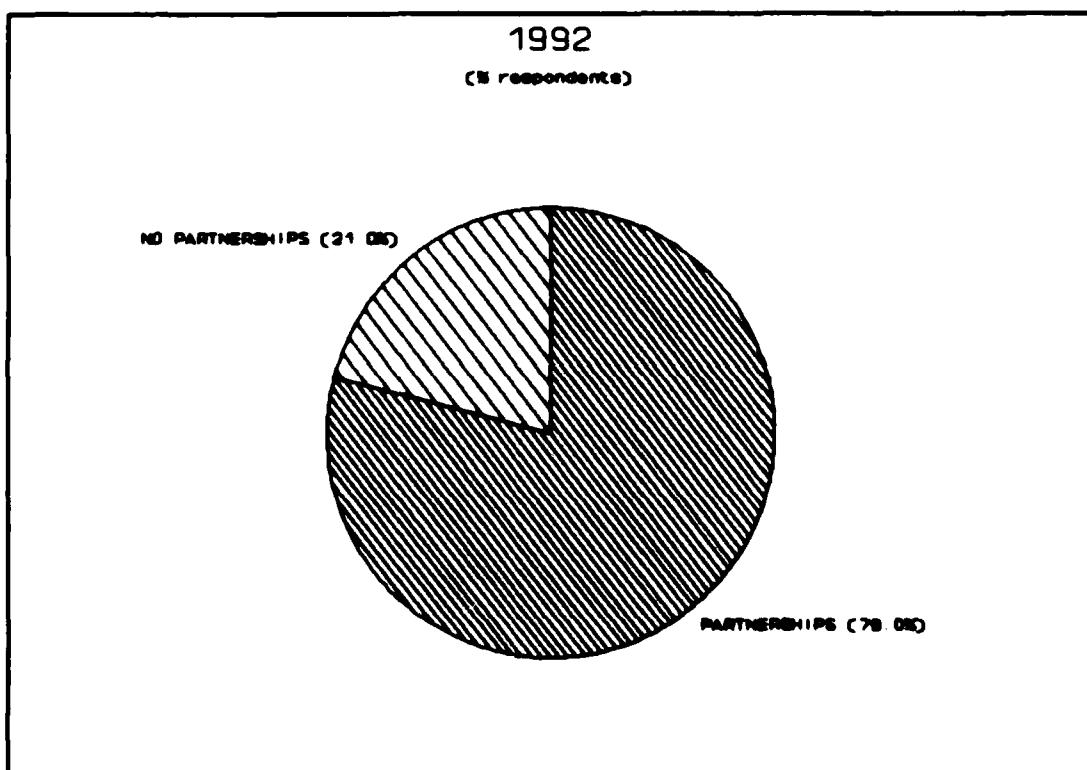


Figure 2.2; 1992 Percentage of Long-Term Relationships

1. What is Long-Term Contracting

During the course of the literature review, the researcher was unable to find an exact definition for long-term contracting. Nonetheless, the researcher did discover the following characteristics of long-term contracting which appear universally accepted:

- * Long-Term Formal Relationships
- * Partnerships
- * Winner-Take-All Contract Awards
- * Strategic Source Planning

a. Long-Term Formal Relationships

The first characteristic of long-term contracting involves the establishment of a formal buyer/seller relationship longer than traditionally expected (usually longer than one year) in a normal competitive environment. This contracting approach is intended to cultivate a buyer/seller relationship which enhances the level of product or service quality expected by the buyer and delivered by the seller. Without some sort of formal relationship, many vendors are unwilling to obligate a set portion of their output without assurances of future purchases. For example, another Purchasing survey found that 61 percent of firms who say they have long-term relationships, have formal agreements. Of that group, 64 percent have something written and signed, but say it is non-contractual; 36 percent have taken the

additional step and signed long-term contracts. [Ref. 4:p. 22]

The researcher believes that an even greater percentage of firms involved in long-term relationships will require formal written terms in the future. The case of the Texas Extrusion Corporation should convince any doubters of the need for a formal agreement. [Ref. 5:p. 33] Shortly after Texas Extrusion had agreed to refit its entire plant to the needs of its buyer, the buyer opted to discontinue the product for which Texas Extrusion provided the material. And as a direct result of this incident, Texas Extrusion fell into bankruptcy. Texas Extrusion had a long-term agreement, but unfortunately did not have any actual formal written terms.

b. Partnerships

Long-term contracting relationships are also characterized by cooperation and mutual dependence, or a partnership between the buyer and the seller. Thus, a great deal of sharing takes place between the parties. Usually this involves not only sharing production scheduling information and technical know-how, but also the sharing of cost information.

At the heart of this relationship, according to buyers who use it, is the assumption of *quid pro quo*. In particular, buyers and suppliers give something to get something. Buyers typically make specific demand guarantees to their suppliers and the suppliers ensure that a certain

portion of their output is reserved to meet the buyer's requirements. [Ref. 3:p. 23]

c. Winner-Take-All Contract Awards

Initially competition is sought for the first procurement; however, future awards (in private industry) are often made to the seller without seeking additional competition.¹ In this winner-take-all arrangement, the seller normally becomes a single source of supply to the buyer. With single sourcing a buying firm has elected to purchase all of its requirements from one vendor. This should not be confused with the concept of sole sourcing. Sole sourcing generally refers to the use of one source because, in a practical sense, only one source exists due to exclusive design, location, etc. A side effect of these arrangements, is that organizations have begun to consciously reduce their supplier base. [Ref. 6:p. 19]

The primary advantage of winner-take-all contract awards with fewer, higher quality vendors, is because these type of relationships can often lead to improved end-item quality. For instance, studies have shown that most U.S. manufacturers purchase more than half of their component parts. As such, the quality of these incoming parts can significantly affect the quality of outgoing products. [Ref. 7:p. 76]

¹This is not true in Government procurement. Government statutes generally always require competition.

d. Strategic Source Planning

Another characteristic of long-term contracting is strategic source planning. Strategic source planning is critical to the success of long-term contracting. Partnerships are much different in nature than traditional buyer-seller relationships, and thus require the consideration of additional factors in supplier selection. [Ref. 8:p. 8] Specifically, buyers who award long-term contracts place a great deal of effort in analyzing what types of materials and which vendors would be suitable for this approach.

One way that firms are measuring vendors' performance is through supplier rating programs. A 1991 survey reported by *Purchasing* magazine shows that suppliers are being subjected to formal and detailed monthly or quarterly performance surveys on everything from product quality and delivery schedules to receipt of technical data sheets and timely billing paperwork. [Ref. 9:p. 92] At the time this survey was conducted, nearly two-thirds of the major manufacturing firms in the country had supplier rating programs. In addition, the survey concluded that a vast majority of formal rating programs currently in place will be even tougher by mid-decade. Selected results of this survey are shown in Figures 2.3, 2.4, and 2.5.

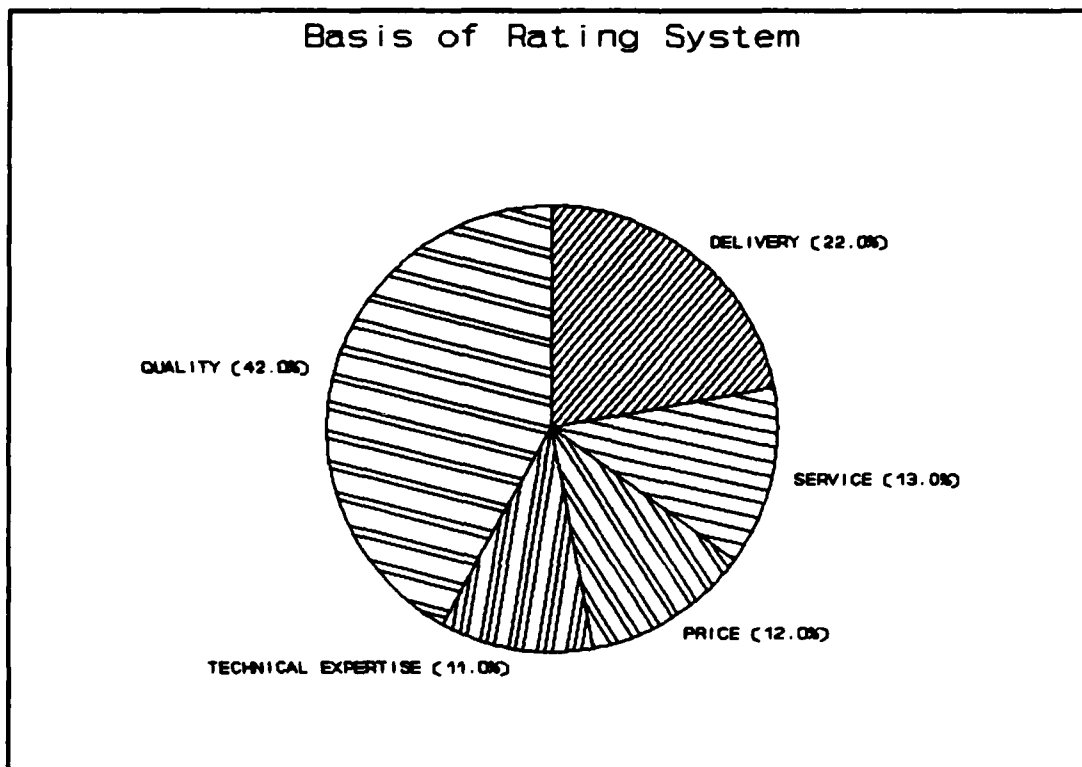


Figure 2.3; Factors Rated

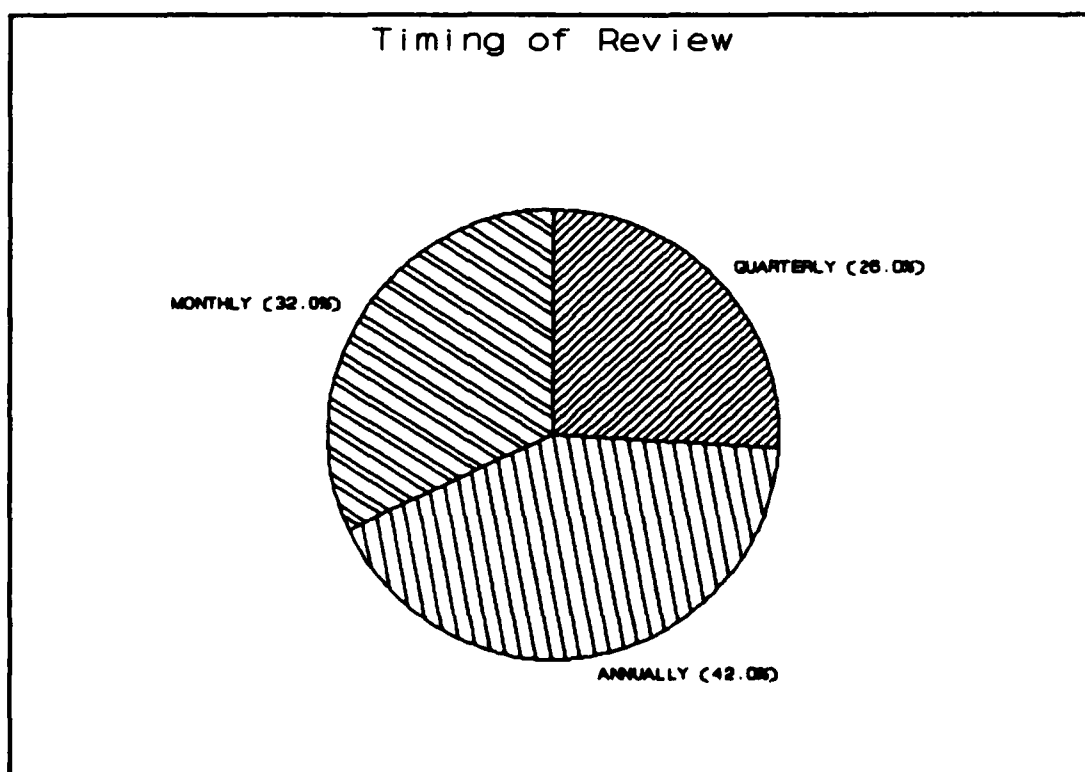


Figure 2.4; Frequency of Rating

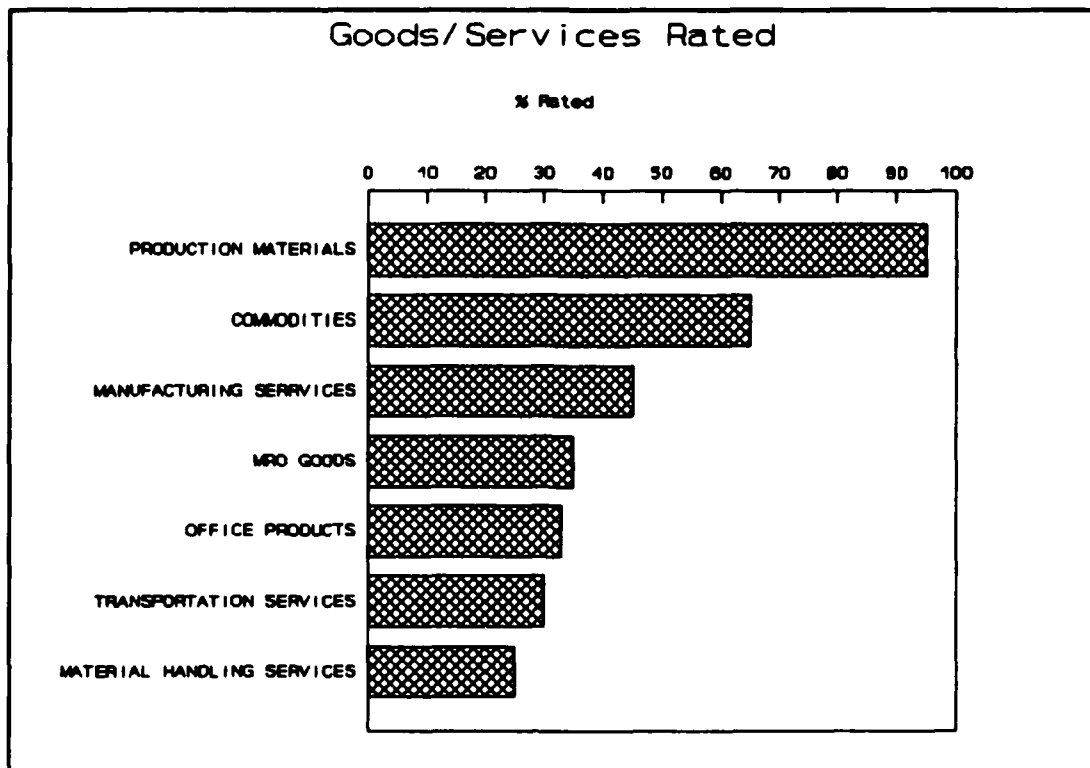


Figure 2.5; Types of Goods and Services Being Rated

2. Purpose of Long-Term Contracting

The primary purpose of long-term contracting is to obtain benefits by both the buyer and the seller, which would not be available with a traditional or short-term relationship. The 1988 *Purchasing* survey cited earlier, for example, found that 85 percent of the buyers who use some form of long-term relationships with suppliers believe it met their goals of reduced inventory, cost control, dependable supply levels, and reduced lead times. [Ref. 2:p. 23]

3. History of Long-Term Contracting

The practice of relying on one source of supply began years ago as sole sourcing. At that time, the use of only one supplier was not a conscious managerial strategy, but rather

was a result of various factors. These factors included geographic proximity to suppliers, inadequate transportation methods, existing monopolies, proprietary products, inflexible design specifications, and an absence of alternative sources. [Ref. 10:p. 106]

After World War II, in the interest of quality, Dr. W. Edwards Deming recommended that firms reduce the number of vendors used. He concluded that having more than one supplier for a particular product only increased the inherent amount of variation in the product. Although U.S. or European firms did not embrace this concept at first; Japanese firms did.²

Incentives for entering into single source relationships have changed over the years. Originally, single sourcing was used as a sort of reward for the firm which submitted the lowest bid in a procurement. Typically, the lowest bidder received the benefits of being the exclusive supplier and as such also developed an advantage over other suppliers for future work. By today's standards these arrangements would be short in duration, but were nevertheless aggressively sought by vendors. [Ref. 6:p. 20]

Today, single sourcing usually implies much more. A longer term relationship and an emphasis on life-cycle cost reduction and quality improvements are the major differences.

²More will be said about Dr. Deming's influence on long-term contracting later in this chapter.

Ironically, now it is typically the buyers who aggressively seek long-term relationships. [Ref. 6:p. 20]

B. ADVANTAGES/DISADVANTAGES OF LONG-TERM CONTRACTING

As previously discussed, the purpose of long-term contracting is to obtain advantages by both the buyer and the seller, which would not be available in traditional purchasing arrangements. The traditional method is one that encouraged short-term competitive-based purchasing. Under this method, a buying organization tries to maintain as many sources as possible for each of its procured materials. This strategy is designed to ensure alternate sources of supply in case of supply disruptions (e.g., labor strikes, raw material shortages, and natural disasters). Additionally, competition is used to allow the market place to play an important role in determining the prices of goods and services. [Ref. 6:p. 20]

1. Advantages

Although there are many advantages to traditional purchasing methods, in many cases even greater benefits can accrue when a buyer and seller work together in a cooperative long-term relationship. Five specific universally accepted advantages of long-term contracting which the researcher found in the course of the literature review are:

- * Improved Problem Solving
- * Reduction of Life-Cycle Costs
- * Improved Quality

- * Improved Resource Planning
- * Increased Investment

a. Improved Problem Solving

Improved problem solving is the first significant advantage to both the buyer and the seller in long-term contracting arrangements. Such a relationship allows the buyer to learn more about the costs, difficulties, and the needs of the supplier. On the other hand, the vendor learns more about how the buyer uses its product, and develops a more complete understanding of the buyer's problems and needs. [Ref. 6:p. 21] Suppliers can be especially helpful in the area of product design. A 1984 study indicated that when suppliers are involved early in the buyer's design process, they can apply their expertise in nine areas. [Ref. 11:p. 67] These areas are: (1) material specifications, (2) tolerances, (3) standardization, (4) order sizes, (5) process changes in supplier's manufacturing, (6) packaging, (7) inventory, (8) transportation, and (9) assembly changes in buyer's plants.

b. Reduction of Life-Cycle Costs

Another major advantage of long-term contracting arrangements to a buyer and a seller involves the reduction of life-cycle costs. Long-term contracting arrangements, for instance, enabled Xerox to reduce copier costs 10 percent from 1980 through 1985. [Ref. 12:p. 45] Life-cycle costs are all costs incurred for a product beginning at its design and ending with its disposal. Specifically, life-cycle costing

seeks to determine the total cost of ownership rather than just the initial price of product. [Ref. 13:p. 328]

There are many reasons why life-cycle costs for a product may be reduced under long-term contracting arrangements. From a buyer's viewpoint, one reason proposed by Dr. Mark Treleven (a noted expert), is that the buyer's production costs will be reduced because adjustments are no longer necessary when changing from a part supplied by one vendor to the same part supplied by another vendor. [Ref. 6:p. 20] Besides reducing actual production costs, buyers may also be able to reduce their sales and order processing costs, material handling costs, and inventory holding costs with a long-term contractual approach.

Long-term contracts also normally decrease the production costs of suppliers. As a result of the increased volume associated with long-term contracts, vendors' fixed costs can be spread over a larger number of products, resulting in lower individual unit costs. Additionally, the increased volume may mean that a vendor can drop some of its less profitable accounts.

c. Improved Quality

A very important side benefit of long-term contracting to both parties is increased communication. According to Dr. Treleven, this increased communication ultimately leads to less rejected shipments and rework. For instance, he says, "When quality problems do develop, the

buyer is able to provide useful information about the difficulties, thus facilitating the prompt initiation of corrective action." [Ref. 6:p. 22]

In addition, a supplier with a long-term contract is probably more likely to be innovative or to modify production processes than a supplier with a short-term contract. [Ref. 14: p. 64]

d. Improved Resource Planning

Improved resource planning is also frequently cited as a common benefit of long-term contracting. To a seller, this typically means a level of guaranteed demand over an extended period of time. This guaranteed demand, in turn, enables a seller to reduce its administrative burden and to stabilize its productions runs. Sellers involved in long-term relationships normally are also able to provide greater delivery dependability, reduce buyer administrative lead time, and are more responsive to changes proposed by the buyer.

e. Long-Term Investment

A final commonly cited advantage of long-term contracting is that in many cases suppliers are more willing and able to invest in new plant and equipment, as well as R&D efforts when future sales volumes are known. Increased investment assists the supplier in improving his production capabilities and makes him/her more competitive in the industry. Money spent in R&D and capital investment also allows a supplier to propose technologically current, cost-

effective, and high-quality solutions to a buying firm's needs. [Ref. 13:p. 180]

Unfortunately, traditional purchasing methods do not provide the assurance of future sales or return on investment normally needed by sellers before they will make long-term investment decisions. [Ref. 15:p. 6]

2. Disadvantages

Although the researcher has mentioned many of the benefits of long-term contracting, it is impossible to get an objective "big picture" perspective of this procurement method without also looking at its drawbacks. Two of its main disadvantages are:

- * Loss of Competition
- * Complete Dependency on the Other Party

a. Loss of Competition

As previously mentioned, a primary reason for entering into long-term contractual relationships is to reduce life-cycle costs. However, in some situations long-term contracting can actually increase costs. The absence of competitive cost pressures is one of the major concerns of most buyers when considering single sourcing. From the seller's side, a primary consideration is getting a fair price as well. In a relatively free economic system, two key factors determine the price a vendor is able to achieve: (1) the cost of production and distribution, and (2) the market

factors of supply, demand, and pricing behavior of competitors. In a single sourcing environment, the focus is on cost; market factors play a secondary role. As such, a vendor with a strong bargaining position (e.g., only supplier) may actually have to charge less with a long-term contract than under a short-term contractual relationship. [Ref. 6:p. 22]

Another reason for entering into long-term contracts is to improve quality and service. Again, however, in some situations sole sourcing may lead to a decrease in quality. Without competition, but with assurances of a stable future demand, a supplier may become complacent. According to the authors of *Purchasing and Materials Management*: "Complacency can result in less than satisfactory levels of service, quality problems, and a failure to maintain technological accuracy." [Ref. 13:p. 184]

b. Complete Dependency on the Other Party

Complete Dependency on the Other Party - One of the benefits of long-term contracts is that buyers are guaranteed a steady flow of material and sellers are guaranteed a steady demand. This relationship is fine as long as there are no disruptions to production. However, in times of emergencies a buyer may be at the mercy of its supplier. For example, the Saturn Division of General Motors recently had to stop production of its cars within 48 hours, when their sole supplier of an automobile body part experienced a labor

strike. From the supplier's point of view, the main concern is just reversed. Dr. Treleven, for instance, says, "What would happen to a vendor if its source of demand incurred some type of catastrophe or, for whatever reason, discontinued the product for which the vendor is supplying parts?" [Ref. 6:p. 23]

Additionally, there are other dependency drawbacks from a supplier's perspective. One such problem is that it is not unusual for a few customers to make up a large percentage of a supplier's business. As such, the loss of just one customer can financially devastate a supplier. Another problem often cited concerns the opportunity cost a supplier may experience with a long-term contract. When a supplier enters into a long-term contract, it automatically obligates a portion of its capacity for the duration of the contract. Consequently, a supplier may be giving up profits from potential new business that may have been possible had not its capacity already been allocated. Loss of supplier identity is also a problem concerning long-term contracting. Although suppliers like close knit relationships, they also want to retain some form of independence and separate identity. [Ref. 16:p. 22]

C. INFLUENCES OF LONG-TERM CONTRACTING

In the introduction of this chapter the researcher mentioned various logistical concepts which are encouraging

the use of long-term contracting. Unfortunately the researcher is not able, due to the scope of this thesis, to adequately cover every logistical concept influencing the use of long-term contracting. Nevertheless, the researcher will focus on three of its major influences. They are: (1) best value, (2) inventory management and distribution systems, and (3) total quality management.

1. Best Value

Best value involves making purchasing decisions on other than a price-only basis. Essentially this concept is the application of common sense to the buying process. [Ref. 17:p. 268] Other factors besides price which are important determinants of a best value purchasing decision include life-cycle costs, schedule, service, quality, reliability, technical ability, and financial stability. The objective of buyers who use best value is neither lowest price nor maximum performance, but rather a balance between these factors and the other more subjective criteria which the researcher has mentioned. For example, in the course of satisfying a purchase request for a coffee cup, a buyer has received two proposals; one is for a paper cup and the other is for a ceramic cup. The price of the paper cup is \$1.00 and the price of the ceramic cup is \$2.00. Both cups can satisfy the customers requirement; nonetheless, if price was the only factor considered, the paper cup would be purchased over the ceramic one. But since the paper cup can only be used once

before disposal it might not be the best value for a particular buyer.

One major disadvantage of this concept is that the factors and their relative weights involved in determining best value for one purchasing decision may not be applicable to another purchasing decision. [Ref. 17:p. 268] Fortunately, in many cases, long-term contracting can assist a buyer in making a sound purchasing decision under a best value approach. This is because long-term contracting arrangements encourage suppliers to put greater emphasis on other factors besides price. As stated earlier, suppliers in long-term contractual relationships are more likely to share their technological ability, improve quality, offer better service, enhance performance, and reduce life-cycle costs.

2. Inventory Management and Distribution Systems

Another very important factor which has significantly encouraged the long-term contracting is the increased use of scientific inventory management and distribution systems by both the private and public sectors. Additionally, in many of these inventory management and distribution systems, long-term contractual relationships actually play a vital role in their success. The researcher will discuss and analyze two inventory management and distribution systems which have had the greatest impact on long-term contracting. They are:

- * Material Requirements Planning (MRP)
- * Just-In-Time Production Planning (JIT)

a. *Material Requirements Planning*

Although in the past few years, users have found that with some refinement MRP can be used for scheduling, financial planning, and simulation, it was originally designed to plan and control manufacturing inventories such as raw materials, components, and sub-assemblies. Under this system, the quantity required and reorder point for these items are dependent on the production needs and ultimately the demand of an end item. A refrigerator door, for instance, is a dependent demand item in the production of a refrigerator. [Ref. 13:p. 421]

In practice, quantity requirements and purchase requests are normally accomplished by computer. Although details of the software operation may vary, generally speaking, the MRP system works as follows: It takes the master production schedule output for a given product and calculates precisely the specific part and component requirements for that product during the given period of operation. Since a given part often is used in more than one finished product, the process is then repeated for all products. Next, all requirements for a given part are added to obtain the total sum required during the given period of operation. After a part's requirements for the operating period are calculated, the computer automatically compares these requirements with the inventory balance, considering outstanding orders scheduled for receipt to determine whether

a new order needs to be placed. When operating properly, the MRP system will reduce inventory investment, improve work flow, reduce the shortage of materials and components, and help achieve more reliable delivery schedules. [Ref. 13:p. 422]

However, the use of MRP necessitates greater flexibility, reliability, and closer relationships between the buyer and seller. Purchase requests are also generated more frequently and for smaller quantities than under manual material control systems. Additionally, because of the weekly updating of most MRP systems, demand frequently changes and often on short notice. Unfortunately traditional purchasing methods are normally too expensive and inflexible for MRP. Thus, many organizations with MRP systems utilize long-term contracting procedures. In particular, organizations with a MRP system, normally establish annual or long-term contracts with a few selected suppliers--and then place an order against the contract via telephone or fax, as the production operation requires. [Ref. 13:p. 432]

b. Just-In-Time Production Planning

JIT is a system, refined by the Japanese, that encourages the elimination of waste in time and resources during the production of material while also improving product quality. The fundamental principle of JIT is to produce the right units in the right quantities at the right time. With JIT, units are produced only when needed. Ideally, the number

of parts produced or purchased at any one time should just be enough to produce one unit of the finished product.

Hence, in an effective application of JIT, work centers will be given just enough material from inventory and downstream work-in-process to do a given job at the exact time it is needed. A key component of this coordination is an information system called a *Kanban*, the Japanese word for card. The type and number of units required by the production process are written on Kanbans, which are used to initiate the withdrawal of inventory and the production of units through the production process. By beginning at the final assembly, the Kanban pulls parts and components from preceding work stations. The entire manufacturing process is synchronized to the final assembly stage. In this fashion, JIT prohibits earlier sources of supply and production from pushing units forward and building unnecessary and excessive inventories. [Ref. 18:p. 473]

Inventory is considered undesirable by JIT manufacturers for the following reasons: (1) it hides quality problems, and (2) carrying costs of inventory unnecessarily increase the costs of production. Quality problems tend to be covered up more frequently in non-JIT material management systems, because in non-JIT systems unacceptable items are often just replaced with good items from inventory, without any investigation concerning the cause of the original defect. As a result, JIT proponents claim that there is a tendency

among non-JIT companies to accept mediocre, second rate work as the norm. Additionally, JIT proponents profess that carrying costs associated with inventories drive down profit. On the average, carrying costs increase the cost of material 25 to 35 percent. [Ref. 13:p. 433]

As can be seen, this inventory management and distribution system does not permit the shipment of large lots from suppliers. Consequently, suppliers must deliver materials frequently and in small quantities. Again, as with MRP, traditional purchasing methods frequently are not conducive to meeting JIT's stringent requirements. The very nature of a JIT operation requires closer, more cooperative relationships between buyers and suppliers. Therefore, from a practical point of view, a reduced supplier base is a necessity, and a longer-term contract is the primary incentive that attracts a supplier to consider this arrangement. [Ref. 13:p. 437]

3. Total Quality Management (TQM)

The final major influence on the adoption of long-term contracting practices is TQM. Many public and private organizations have officially adopted TQM as the philosophical and practical guiding principles by which it will manage resources in the 1990s and hence into the next century. [Ref. 19:p. 1]

This concept can be best summed up by the phrase, "Do it right the first time." TQM is a total integrated management approach directed at achieving customer

satisfaction by continuous improvement of the quality of a service or product. It attempts to address quality during all phases of a service/product life-cycle by the application of statistical process control methods. Although TQM has been shaped by many individuals (e.g., Dr. W. Edwards Deming, Dr. J.M. Juran, Mr. P.B. Crosby, etc.) over the past forty or so years, this researcher believes that Dr. Deming's approach has had the greatest impact on TQM's implementation throughout the U.S.

According to Dr. Deming, many U.S. firms in the past competed primarily on price differentiation (i.e., producing an acceptable product for the lowest cost), with little emphasis being placed on quality. These firms believed that increasing quality only made their product more expensive and therefore less competitive. Dr. Deming, however, believes just the opposite. He says that increasing quality will increase the cost of the product initially, but that in the long run it will actually decrease the cost of producing the product. This is because downstream mistakes and rework in manufacturing are usually more expensive (e.g., extra material costs, machine time, tools, and human effort) than improving quality up-front in a product's life-cycle. Thus, he says, firms which use TQM are better able to capture the market in the long run; not only can they provide products at lower prices, but they can provide higher quality products.

Dr. Deming believes that variation is a major cause of quality deficiencies. In particular, the more variation that is introduced into a process, the less likely it is for an organization, no matter how hard employees and management work, to meet its expected quality parameters. According to Dr. Deming, a major cause of inherent variation in a production process comes from supplier material and components. Firms normally buy material from many suppliers and primarily on the basis of lowest price. Unfortunately, no matter how good they are, no two suppliers can produce an item meeting the same exact specifications. Buying strictly on price alone, without considering quality, also indirectly increases the variation of material. Therefore, Dr. Deming advocates that organizations begin a practice of establishing long-term contractual relationships with fewer, but higher quality vendors. [Ref. 14:p. 64]

D. LONG-TERM CONTRACTING IN THE GOVERNMENT

Private industry is actively using long-term contracting whenever feasible. However, many individuals believe that the Government is not able to implement it on the same magnitude. This is not due to less desire by the Government to use long-term contracting, but rather they theorize it is due to inherent differences between public and commercial contracting practices. This final section of Chapter II will explore, from a very general perspective, the use of long-term contracting

in the Government. The researcher will highlight this topic by focusing on three areas: (1) Government long-term contract types, (2) Government contract options, and (3) general barriers to using long-term contracting in the Government.

1. Government Long-Term Contract Types

Although to date there are no regulatory instructions in the Government concerning the specific use and types of long-term contracts, there are two contract types currently available that are best suited for this procurement method.

[Ref. 20:p. 3] They are:

- * Indefinite Delivery Contracts
- * Multiyear Contracts

a. Indefinite Delivery Contracts

An indefinite delivery contract (IDC) is a type of contract used for ordering supplies or services, during a specified period of time, for which the requirements for delivery and/or quantity are not firm, and which negotiation or advertising of each requirement, as it becomes firm, is not advantageous or feasible. The ordering period may vary depending upon the procurement cycle of the items covered by the contract, the normal industry practice, and the production capacity of the contractor. Performance is obtained by issuing orders under the contract, in accordance with the price and delivery schedule agreed upon when the contract was established. [Ref. 21:p. 27] One advantage of IDCs is that

they permit the Government to maintain inventory stocks at minimum levels. Another significant advantage of IDCs is that they reduce transportation costs. Under IDCs, material is normally shipped directly to users. [Ref. 22:p. 16.5]

To be considered for acquisition under an IDC, a stable design must be present. The item, however, need not be exclusively a commercial or modified commercial item. For instance, items do not need to have a national stock number assigned to be purchased. But they must, at a minimum, have a designated manufacturer part number or have been made to a set specification or drawing. Additionally, there must exist recurring demand for the item and reasonable expectation that future requirements will materialize. [Ref. 20:p. I-1]

Actually there are three specific types of IDCs: (1) definite quantity contracts (DQCs), (2) requirements contracts (RCs), and (3) indefinite-quantity contracts (IQCs). A DQC provides for delivery of a definite quantity of specific supplies or services for a fixed period, with deliveries to be scheduled at designated locations upon order. DQCs are appropriate for use when a definite quantity of supplies or services will be required during the contract period and when they will be regularly available or be available after a short lead time. Although contract price tends to be cheaper with DQCs, they are not as flexible as the other two methods. Another disadvantage of DQCs is that funds must be obligated up-front like conventional contract types. [Ref. 22:p. 16.5]

An RC is an indefinite delivery contract established for a specified period of time, under which the Government must place all orders for RC covered items with the designated vendor in the contract. RCs are used when the Government anticipates recurring requirements but cannot predetermine the precise quantities of supplies or services that are needed during a specific contract period. Although the Government is not required to identify the exact quantity, the contracting officer is required to state a realistic estimated total quantity in the solicitation and resulting contract. The contract shall also state, if feasible, a maximum and minimum order quantity. [Ref. 22:p. 16.5] The primary advantages of this method is that it allows for a great deal of ordering flexibility and funds are not obligated until orders are actually placed. The major disadvantage of this method is the potential for supply shortages should the contractor fail to deliver or deliver non-issuable stock. [Ref. 20:p. I-2]

The final type of IDCs are indefinite-quantity contracts. IQCs are very similar to RCs. As with RCs, IQCs are used when the Government cannot predetermine specific quantities of supplies or services for a certain time frame. However, with IQCs the Government is required to order at least a stated contractual minimum. Although the Government may establish minimum quantities with RCs, it is not required to do so. To ensure that the contract is binding, the minimum

quantity must be more than a nominal quantity, but it should not exceed the amount that the Government is fairly certain to order. The contract may also specify maximum or minimum quantities that the Government may order under each delivery order and the maximum that it may order during a specific period of time. [Ref. 22:p. 16.5] In addition to after-the-fact obligation of funds, a primary advantage of IQCs is that the Government is not contractually obligated to purchase all requirements from one contractor, as is the case with RCs. Two disadvantages of IQCs are the possibility that prices may be slightly higher than under DQCs and the fact that ordering flexibility is limited because the Government is obligated to a minimum quantity. [Ref. 20:p. I-3]

b. Multiyear Contracts

Multiyear contracting is a special contracting method, which may be used to competitively acquire a wide range of services and supplies, both commercial and military unique, needed during a period greater than one year but less than five years. Until the past few years, multiyear contracting was used very sparingly and primarily only with the acquisition of major systems and services. Today, although there are still many legislative impediments, it is increasingly being used in the Government for the procurement of a wide range of recurring demand items, with stable specifications and requirements. The Defense Personnel Support Center, for instance, is currently using multiyear

contracts for shelf-life pharmaceutical items. Under this program, the contractor stores the item for the Government and rotates the dated stock with updated stock as the expiration date approaches. [Ref. 20:p. I-3] Multiyear contracting may be used when no-year or multiyear funds are available, or in the case of one-year funds, when multiyear contracting is specifically authorized by statute.³ No matter what type of fund is used though, typically money is appropriated annually under multiyear contracts.

Unfortunately, multiyear contracts are often subject to being cancelled or terminated by the Government. Cancellation would occur if, at the completion of the fiscal year, the Government did not continue the contract for subsequent fiscal years due to lack of funding. The contractor is protected from loss in this event by contractual provisions allowing reimbursement for unrecovered, nonrecurring cost included in prices for cancelled items (e.g., capital investment and employee training), prorated over the life of the contract. Although there is no limit on this ceiling, in most cases the first year ceiling will not exceed \$100 million. Multiyear contracts which contain a

³DoD, however, may enter into multiyear acquisitions, with one year funds, for the following services (and items of supply relating to such services) without a specific statute: (1) Operation, maintenance, and support of facilities; (2) Maintenance or modification of aircraft, ships, vehicles, and other highly complex military equipment; (3) Specialized training requiring high quality instructor skills; (4) Base services; and (5) Maintenance and operation of family housing. [Ref. 23:p. 217.1]

ceiling in excess of \$100 million must first be approved by the Committees on Appropriations and Armed Services of the House of Representatives and the Senate.

Termination would occur if during the course of the fiscal year the Government elected to terminate the remaining portion of the contract. The termination liability would include an amount for both current year termination expenses and the out-year cancellation charges. [Ref. 24:p. 6-6]

In multiyear contracting, prices are solicited for both the current single year requirements and for the total multiyear requirements. When price factors are the basis for the evaluation, award is based on the offer that produces the lowest overall cost to the Government. A cost benefit/cost avoidance technique is used to compare single year procurements with the multiyear through discounted cash flow and net present value techniques. Nevertheless, the use of a solicitation requesting only multiyear prices may be used when: "Competition in future acquisitions would be impracticable after award of a contract covering the first program year requirement and it is necessary to prevent a first program year buy-in." [Ref. 20:p. I-4]

Because of the long-term impact on prices of multiyear contracts, two pricing techniques are often used: (1) economic price adjustments, and (2) level unit pricing. For example, Federal Acquisition Regulation (FAR) subpart 17.1

encourages the contracting officer to use an economic price adjustment clause when the labor and material costs are likely to fluctuate during the period of performance. When economic price adjustments are not used the contracting officer is normally required to maintain the same unit price for each line item or service for all years of the multiyear contract. As can be seen, level unit pricing is accomplished by amortizing certain costs over the entire contract quantity. In addition, level unit pricing is generally used for the evaluation of multiyear offers. However, the head of the contracting activity or a designee, may approve the use of variable unit pricing, provided there is a valid method for evaluation of offers. [Ref. 22:p 17.1]

FAR subpart 17.103 identifies five general criteria indicating when the use of multiyear contracting, in the Government, may be appropriate. Specifically, multiyear contracting may be used when:

- 1) The use of such a contract will result in reduced total costs under the contract.
- 2) The minimum need for the item to be purchased is expected to remain substantially unchanged during the contemplated contract period in terms of production rate, acquisition rate, and total quantities.
- 3) There is reasonable expectation that throughout the contemplated contract period the department or agency will request funding for the contract at the level required to avoid contract cancellation.
- 4) There is a stable design for the item to be acquired and the technical risks associated with such items are not excessive.

- 5) The estimates of both the cost of the contract and the anticipated cost avoidance through the use of a multiyear contract are realistic.⁴

Multiyear contracting can result in significant savings for the Government. A 1987 General Accounting Office study, for example, found that the overall average unit price of eleven multiyear contracts studied was reduced 7.8 percent from the prior year annual contracts and 9.9 percent from the average price for the two prior years. [Ref. 25:p. 6] The most immediate savings came from reducing start-up and other nonrecurring costs such as special tooling and special test equipment, plant rearrangement costs, pre-production engineering, specialized work force training, and so on. Under multiyear contracting the contractor can spread or amortize these costs over the full contract quantity rather than only over a single year's quantity. Additionally, multiyear contracts tend to result in increased standardization, reduced administrative burden, continuing production, and a stabilized work force. [Ref. 24:p. 6-6] Not only is multiyear contracting advantageous to the Government, but in many cases, contractors seem to prefer it.

⁴DoD activities must meet these five general criteria and also three additional criteria. They are: (1) The use of such a contract will promote the national security of the U.S.; (2) The contract provides for a production rate at not less than minimum economic production rates given the existing tooling and facilities; and (3) The economic order quantity of the advance acquisition which precedes the multiyear acquisition is funded at least to the limits of the Government's liability. [Ref. 23:p. 217.1]

For instance, a 1983 survey, conducted by two students at the Naval Postgraduate School, found that 73 percent of Government-oriented businesses favor multiyear contracts over single year contracts. [Ref. 26:p. 25]

The major disadvantage of multiyear contracting to the Government is funding risk. If funds are not made available for the full contract period or if the design features of the item are changed, the Government may find itself with useless parts and with an obligation to reimburse the contractor for its unamortized costs. From a contractor's point of view, the major potential drawback of multiyear contracting is increased financial risk. As previously discussed, the cancellation charge is based only on start-up and other nonrecurring costs. Any costs incurred by the contractor for the performance of future year requirements (recurring costs) are not generally recoverable. Thus a contractor, wanting to purchase material for the entire multiyear requirement in advance, must normally assume the risk that the contract will not be cancelled. [Ref. 24:p. 6-6]

2. Government Contract Options

In addition to the above mentioned contract types, a contract option can also be used by the contracting officer when a longer contractual approach is preferred for a particular procurement. A contract option is the unilateral right of the Government to purchase additional supplies or

services, or to extend the term of a contract, for a specified period of time. For the inventory manager, this translates to a flexible means to satisfy unplanned requirements, and to significantly reduce administrative lead time. For the buyer, the contract option represents an administrative time saver, allowing an immediate award to be processed without the requirement to re-synopsise and re-compete the option quantity. When future funding is uncertain, the contract option can also be used to obtain needed supplies and services when additional funds actually become available. Normally, the option is synopsized with the potential contract in the Commerce Business Daily and is evaluated with the offer as part of the overall evaluation process. If the option is not evaluated at time of award, a justification for other than full and open competition is required at the time the option is exercised.

As can be seen, there are actually two distinct options available to a contracting officer: (1) a quantity option, and (2) a term option. Under the quantity option, the Government has the unilateral right to purchase additional supplies or services in the amount specified in the contract. The second option allows the contracting officer to unilaterally extend the term of the contract (usually five years or less) and is generally used with IDCs or service contracts. When used with an IDC, this option allows the Government to enter into a contract covering more than the

basic contract requirements (generally one year's requirements), without the associated cancellation liability of multiyear contracts. Therefore, a term option not only allows the contracting officer to transform a traditional (short-term) contractual relationship into a long-term contractual relationship, but it allows him/her to do it, in many cases, with increased flexibility. Term options may also be used with multiyear contracts. As such, a five year contract, in theory, can actually become a ten year contract. Although often favorable to the Government, IDC/multiyear-option contracts are not always viewed positively by contractors.⁵ Potential contract extensions make it much more difficult for contractors to accurately project costs. [Ref. 22:p. 17.2]

3. Barriers to Long-Term Contracting in the Government

Although the researcher has highlighted the long-term contract types/techniques available to the Government, the literature review indicates that current Government procurement policies and regulations concerning competition and budgeting often impede the Government's ability to use a long-term approach for the procurement of goods and services. The three major universally accepted general practices which

⁵A term option can protect the Government from loss of coverage resulting from delays in placing subsequent contracts, such as a lengthy pre-award survey, processing of a certificate of competency, or evaluation of alternative offers.

the researcher found in the literature review to be inhibiting Government's use of long-term contracts are:

- * Competition Practices
- * Awarding Contracts Primarily On Price
- * Single Year Budgeting

a. Competition Practices

Both the Government and commercial firms use competition, but their practices of it differ, especially regarding mandatory competition. This is because of the inherent difference between a public and a commercial activity concerning competition. The latter is primarily concerned about the efficiency of an expenditure and therefore only uses competition when it makes economic sense to do so. On the other hand, since a Government activity deals with public funds, there is a need for fairness or equity in its expenditure, as well as some level of efficiency. Unfortunately, these two concepts often conflict and the overriding need for fairness often acts as an inhibitor to adopting many sound commercial buying practices, such as establishing and maintaining good, cooperative, and long-term supplier relationships.

The requirement for competition is not new to the Government. Almost since the founding of the nation, competition has been the preferred method of obtaining goods and services by the Government. This longstanding principle

was reaffirmed by the Armed Services Procurement Act (ASPA) in 1947 and the Competition in Contracting Act (CICA) in 1984. ASPA required that contracts for goods and services be formally advertised or competitively negotiated, whenever practicable. CICA amended the ASPA to require the Government to use full and open competition (with seven limited exceptions) in all buys. This has resulted in a proliferation of bids for Government contracts and a multitude of suppliers, adding significant "non-value-added" costs. Additionally, a 1990 survey on TQM barriers in DoD, conducted by a student at the Naval Postgraduate School, found that CICA was the number two most significant barrier blocking implementation of TQM in DoD. [Ref. 19:p. 57]

Not only can the requirement for full and open competition be a problem at the prime contract level, but many DoD contractors also stop short of establishing effective partnerships with their suppliers. For example, a 1991 survey, conducted by a another student at the Naval Postgraduate School, found that 39 percent of defense contractors had difficulty in establishing long-term relationships with their suppliers versus 0 percent for companies that had recently won the Baldrige National Quality Award. This survey also found that the primary cause of defense contractors' difficulty in establishing long-term relationships with suppliers was due to Government competition requirements. [Ref. 27:p. 62]

Again, although there are many times when competition is effective and should be utilized, there are other instances when it may not be the most efficient or even the most prudent way of doing business.

b. Awarding Contracts Primarily on Price

Awarding contracts primarily on lowest price is another practice which impedes the use of long-term contracting in the Government. For instance, many commercial buyers seek out suppliers of high-quality, reasonably priced products and then stay with them as long as the relationship remains mutually beneficial. This does not mean though that new suppliers are never considered. If a new supplier can show that it can provide an optimal balance between getting maximum value at an affordable price, then they should and often do get rewarded with a firm's business. However, this practice of awarding on best value does significantly reduce the chance of frequently changing suppliers. Unfortunately, most Governmental contract awards continue to go to the lowest priced, responsive, and responsible offerer. Although the Government is not precluded from using the concept of best value; no defined criteria exist for evaluating quality or determining best value. [Ref. 28:p. 63] In addition, without some sort of defined criteria, it is much easier for losing offerors to successfully protest awards when factors other than price are considered.

Thus, the researcher recommends the Government establish an objective quality and past performance system that can be measured and which can withstand administrative protests. Although it is much easier said than done, organizations in DoD are attempting to do just this. For example, The "Blue Ribbon Supplier" systems being established in the Services and the Defense Logistics Agency recognize a supplier's past performance and apply a percentage cost bonus in subsequent source selections.

Additionally, the Report of the Defense Systems Management College 1988-89 Military Research Fellows recommends that DoD move away from minimum specifications that allow selections to be made solely on price, to variable-incentive performance specifications, based on acceptable ratios between cost and performance (e.g., a 10 percent improvement in mean time between failure would be valued at 5 percent of the acquisition price). Not only would use of variable-incentive performance specifications reduce the practice of awarding contracts on price alone, but they would also encourage the Government to utilize a long-term contracting approach. [Ref. 1:p. 55]

c. Single Year Budgeting

The third major universally accepted obstacle which the Government faces when attempting to use long-term contracting procedures is the practice of single year budgeting. Defense procurement normally proceeds by a series

of annual steps. The annual defense appropriation act provides funding for the purchase of "requirements" as programmed year by year for the Five-Year Defense Plan. Specifically, there are three types of appropriated funds: (1) annual funds, (2) multiyear funds, and (3) no year funds. Although these time frames define the varying periods available for obligation, the funds carried in the annual appropriation act are one-year appropriations unless the act specifically provides otherwise. This is provided by statute (section 1501 of 31 USC) which reads:

Except as otherwise provided by law, all balances of appropriations contained in the annual appropriation bills and made specifically for the service of any fiscal year shall only be applied to the payment of expenses properly incurred during that year, or to the fulfillment of contracts properly made within that year.

This statute, coupled with the fact that funds must normally be available before creating an obligation, limits the use of normal contracting types and methods to a short-term procurement approach. Unfortunately, single year budgeting also significantly reduces the effectiveness of multiyear contracts and IDCs. As stated earlier, a Governmental contracting office may not use multiyear contracting for procurements financed with annual funds in the absence of specific statute. Therefore, although in recent years Congress has relaxed the usage requirements of multiyear contracting, a contracting agency, because of single year budgeting, must still either have no-year or multiyear funds

specifically appropriated for the particular procurement or must ensure that there is a specific statute authorizing the use of annual funds. Many agencies are willing to go through this highly bureaucratic process for "large ticket items," but are normally unwilling to do it for smaller buys. And, although IDC's ordering periods vary, they normally cannot exceed one year due to the expiration associated with annual appropriated funds.

Consequently, because of single year budgeting, Government agencies are often encouraged to take a short-term procurement approach, even when a long-term approach may make better business sense.

E. SUMMARY

During approximately the past ten years there has been a fundamental change taking place in the way purchasing is being conducted. Recently, logistical concepts such as best value, just-in-time, materials requirements planning, and total quality management have caused organizations to move away from short-term contracts to longer term contracts.

Unfortunately, an exact definition for long-term contracting was not found during the literature review, but the researcher did find four characteristics of long-term contracting which appear universally accepted. These are: long-term formal relationships designed to enhance buyer/seller cooperation, partnerships, winner-take-all

contract awards, and strategic source planning. The primary purpose of these longer term contracts is to improve problem solving, reduce costs, improve quality, improve resource planning, and increase supplier investment.

Although there are many advantages, there are also disadvantages with long-term contracts, such as loss of competition and becoming dependent on the other party. The type of relationship that is most desirable really depends on the details of each specific procurement. In general, however, the advantages of long-term contracting can often outweigh its negatives.

In addition, although this concept has been proven to be successful by private industry, the literature review indicates that Government procurement practices and regulations concerning competition and budgeting may impede the Government's ability to use a long-term contracting approach.

The next chapter highlights the results of a survey which was conducted to determine to what extent Government procurement practices and regulations concerning competition and budgeting affect DoD's ability to utilize a long-term contracting approach and to identify any successful long-term contracting "lessons learned" that can be used by DoD activities.

III. QUESTIONNAIRE RESULTS

A. BACKGROUND

Data for this part of the thesis were obtained primarily from a questionnaire mailed to individuals from private industry, as well as to individuals from DoD procurement offices. Additionally, follow-up telephone interviews were conducted with selected questionnaire respondents.

The objective of the questionnaire was to examine certain specific issues surrounding the use of long-term contracting by both private industry and DoD, in hopes that this information can be applied in a way that will be beneficial to DoD's current long-term contracting initiative.

Anonymity was afforded to all individuals who responded to the questionnaire in case they did not wish to be identified as sources of information for their respective organizations.

1. Questionnaire Structure

The first part of the questionnaire was designed to obtain demographic information concerning the respondents (e.g., name, organization, position, and acquisition experience).

Questions one and two allowed individuals to indicate whether or not they wished their answers to remain confidential and whether or not they were willing to discuss their views with the researcher by telephone. Approximately

50 percent of respondents wanted their answers to remain confidential and approximately 90 percent were willing to further discuss their views with the researcher.

Question three asked for the organization's primary business. (Appendix C lists the main products of companies that participated in the survey.)

Question four asked whether their organization used long-term contracts when purchasing goods and services.

The remainder of the questions were designed to elicit specific information concerning the use of long-term contracts by respondents who answered yes to question four. In particular, these questions were designed to determine how often respondents used long-term contracts; types of goods and services being contracted for on a long-term basis; types of contracts, pricing arrangements, incentives, and special contracting methods used with long-term contracts; barriers faced when using long-term contracts; and characteristics of successful long-term contracts.

2. Demographics, Solicitations, and Responses

Approximately 250 questionnaires were mailed in the course of this research and 163 were returned. One hundred and thirty questionnaires were sent to the senior procurement officials employed by companies (both large and small) that specialize in both commercial and defense related work. Of the 130 questionnaires sent to private industry, 86 went to suppliers of DoD that were selected at random and the

remaining 45 were mailed to firms selected at random that are members of the Aerospace Industries Association. There were 83 individuals from private industry who responded. Seven of which were further interviewed by the researcher via telephone.

One hundred and nineteen questionnaires were sent to the senior procurement officials of DoD organizations involved in the procurement of goods and services. Specifically, 32 were sent to Army activities; 27 to Air Force activities; 42 to Navy activities; 10 to Marine activities; and 8 to Defense Logistics Agency activities. These organizations consisted of the major military purchasing offices listed in DoD Manual 4205.1-M, entitled, "Selling to the Military." There were 80 individuals from DoD who responded. Twelve of which were further interviewed by the researcher via telephone.

Table 3.1 is a summary of the number of questionnaires mailed and returned and Table 3.2 provides a summary of the average number of years of acquisition experience by respondents. Although in many cases the actual director of purchasing/contracting did not respond personally, Table 3.2 shows that they usually instructed someone else, with quite a bit of acquisition experience, to reply.

TABLE 3.1; QUESTIONNAIRES MAILED/RETURNED

NUMBER OF QUESTIONNAIRES MAILED AND RETURNED.		
	<u>DoD</u>	<u>Private Ind.</u>
Mailed	119	130
Returned	80	83
% Returned	67%	64%

TABLE 3.2; AVERAGE ACQUISITION EXPERIENCE OF RESPONDENTS

HOW MANY YEARS HAVE YOU WORKED IN THE ACQUISITION FIELD?		
	<u>DoD</u>	<u>Private Ind.</u>
Years	17	21

B. FINDINGS AND ANALYSIS

In this section the researcher will present and analyze the results of questions four through sixteen of the survey. These questions were divided into two groups. One group includes data submitted by DoD procurement offices and the other group includes data submitted by private industry. In turn, the responses to the questionnaire for both groups were broken down into the following categories: (1) use of long-term contracts (questions four through seven), (2) goods and services contracted (questions eight and nine), (3) types of contracts and pricing arrangements (question ten), (4) incentives (questions eleven and twelve), (5) unique contracting arrangements (question thirteen), (6) barriers (question fourteen), and (7) general (questions fifteen and sixteen).

1. Use of Long-Term Contracts

Question four sought to determine if the organizations surveyed were using long-term contracts when purchasing goods and services. In addition, for those who answered no, question four asked respondents to briefly describe why not. As shown in Table 3.3, 89 percent of respondents from DoD and 84 percent of respondents from private industry indicated that they utilize long-term contracts. These results are exactly opposite to what the researcher expected. Based on the literature review, the researcher assumed that the survey would reveal that private industry used long-term contracts more often than DoD.

TABLE 3.3; USE OF LONG-TERM CONTRACTS

DOES YOUR ORGANIZATION USE LONG-TERM CONTRACTS WHEN PURCHASING GOODS AND SERVICES?		
	<u>DoD</u>	<u>Private Ind.</u>
Yes	89%	84%
No	11%	16%

There were only a few reasons why those who responded no, did not use long-term contracts. The reason most cited by DoD procurement offices was the practice of single year budgeting in DoD. Other reasons given by DoD activities included CICA, and the fact that the types of items they procured did not lend themselves to long-term contracting. Company policies of not committing for more than one year's requirements were the primary reason for not using long-term

contracts by private industry. However, a majority of these commercial organizations which gave this reason also stated that the company was currently considering using long-term contracting when it made good business sense to do so. For instance, one purchasing supervisor said, "Until recently, our company has had a policy of not committing for more than one year's requirements, but the company is currently in the process of implementing a few select long-term agreements." Other reasons mentioned by private industry were low rate production, and the fact that the types of items they procured did not lend themselves to long-term contracting.

Questions five and six were designed to determine exactly how often organizations (which say they use long-term contracts) actually use long-term contracts. In particular, question five asked for the dollar value percentage of an organization's contracts that are of a long-term nature. And question six asked what percent of the number of an organization's contracts are of a long-term nature. The results of questions five and six are listed in Tables 3.4 and 3.5 respectively.

TABLE 3.4; PERCENTAGE OF LONG-TERM CONTRACTS BY DOLLAR

WHAT PERCENT OF THE DOLLAR VALUE OF YOUR CONTRACTS FOR THE PROCUREMENT OF GOODS AND SERVICES ARE OF A LONG-TERM NATURE?		
	DoD	Private Ind.
0 to 20%	7%	33%
21 to 40%	24%	38%
41 to 60%	15%	19%
61 to 80%	27%	5%
81 to 100%	27%	5%

TABLE 3.5; PERCENTAGE OF LONG-TERM CONTRACTS BY NUMBER

WHAT PERCENT OF THE NUMBER OF YOUR CONTRACTS FOR THE PROCUREMENT OF GOODS AND SERVICES ARE OF A LONG-TERM NATURE?		
	DoD	Private Ind.
0 to 20%	26%	59%
21 to 40%	17%	24%
41 to 60%	22%	13%
61 to 80%	13%	2%
81 to 100%	22%	2%

As shown in Tables 3.4 and 3.5, the statistical results of these questions indicate that DoD uses long-term contracts on a larger percentage by both dollar value and frequency than do the companies surveyed. Specifically, on the average, approximately 58 percent of the dollar value of DoD contracts versus approximately 32 percent of private industry contracts for the procurement of goods and services are of a long term nature. And, on the average, approximately 47 percent of the number of DoD contracts versus approximately

23 percent of private industry contracts are of a long-term nature.

Question seven sought to determine the average lengths of long-term contracts in DoD and private organizations. The results of this question (Table 3.6) indicate that the average length of a long-term contract is approximately 4 years in DoD and approximately 3 years by the companies surveyed.

TABLE 3.6; AVERAGE LENGTH OF LONG-TERM CONTRACTS

WHAT IS THE AVERAGE LENGTH OF YOUR LONG-TERM CONTRACTS?		
	<u>DoD</u>	<u>Private Ind.</u>
> 1 but < 2 years	0%	26%
> 2 but < 3 years	23%	34%
> 3 but < 4 years	32%	18%
> 4 but < 5 years	27%	10%
5 years or more	18%	12%

In summary, the results of section one of the questionnaire were quite surprising. Not only did they indicate that DoD is more likely to utilize long-term contracts and to a greater degree than the companies surveyed, but that on the average, DoD long-term contracts are of greater lengths. Based on these results, it appears that Government contracting policies and procedures concerning competition and budgeting do not, in the final analysis, prevent DoD from using long-term contracts.

2. Goods and Services Contracted

The intention of this section of the questionnaire was to determine what types of goods and services are most conducive to being procured on a long-term basis. In order to accomplish this objective, this section was comprised of two questions. Question eight asked what types of goods and services are procured on a long-term basis and why. And question nine asked respondents what types of goods and services they would like to contract for on a long-term basis and why. The results of the first part of these questions indicated that most recurring services and items (normally common and/or of a stable design) purchased on a repetitive basis, with firm requirements, were conducive to this type of procurement approach.

The specific results of the first part of question eight are presented in Table 3.7.

TABLE 3.7; GOODS AND SERVICES CONTRACTED FOR LONG-TERM

WHAT TYPES OF GOODS AND SERVICES ARE YOU CURRENTLY CONTRACTING FOR ON A LONG-TERM BASIS?		
	<u>DoD</u>	<u>Private Ind.</u>
ADPE	4%	4%
Common Supplies	15%	21%
Construction Contracts	3%	0%
Eng./Tech. Services	13%	3%
Facility Services	22%	6%
Large & Complex Items	6%	2%
Logistic Support	3%	2%
Manufacturing Services	0%	4%
MRO Goods	8%	13%
Overhaul & Maintenance	14%	9%
Production Materials	0%	23%
Raw Materials	1%	9%
Research & Development	7%	2%
Transportation Services	4%	2%

The results of the first part of question nine, however, were not as easy to quantify. In many cases respondents did not answer question nine or normally answered it in the following general ways: (1) gave same response as question eight, (2) said they would like to see any item or service of a recurring nature with stable requirements contracted for on a long-term basis, or (3) said there are no additional items they would like to see contracted for on a long-term basis.

The reasons for using long-term contracts, provided by both DoD and private industry respondents, were very similar to the advantages of long-term contracts found in the literature review portion of this thesis. For example, the majority of respondents stated in questions eight and nine that they had found through experience that long-term contracting of materials and services of a stable and recurring nature can save an organization money in two ways. First, by purchasing larger quantities and providing suppliers with assurances of future purchases, suppliers are able to offer lower unit prices. Second, long-term contracting can also significantly reduce ordering costs for the buyer. Other reasons frequently given for why they used long-term contracts included (1) enhances quality, (2) improves relationship with suppliers, and (3) improves contracting efficiency (e.g., reduces contracting personnel workload and administrative lead time). One DoD contracting supervisor, for instance, said: "Long-term contracts save the Government time and money; with limited resources you need ways of not having to go through the procurement process as often."

3. Types of Contracts and Pricing Arrangements

Question ten solicited information concerning the type of contracts and pricing arrangements used with long-term contracts. Responses to this question (Table 3.8) indicate that firm-fixed-price contracts are the most common type of contract and pricing arrangement used by both DoD and private

industry. Although there appears to be commonality concerning the use of firm-fixed-price contracts, there are many differences in the way other contract types and pricing arrangements are employed by the respondents.

The first major difference is that DoD is more apt to use cost type contracts. This is probably due to the fact that DoD purchases a larger number of items and services (e.g., research & development, facility services, and engineering & technical services) that involve a greater degree of risk to suppliers than does private industry.

A second major difference, revealed by Table 3.8, is the use of economic price adjustments (EPAs) or other EPA type arrangements. The primary reason why DoD does not use EPAs as often as private industry is not because they do not want to, but because EPAs require independent indices to be operative. Unfortunately, for many DoD procured items and services, indices have not been established or DoD and industry are not able to agree on an equitable arrangement that can meet regulatory requirements. On the other hand, commercial buying organizations are more apt to buy items and services for which indices can be established. And even when they cannot, they are often able to renegotiate prices during the term and at time of contract extension without reliance on a specific EPA clause or other regulatory restrictions.

The final difference between the two survey populations involves the use of indefinite delivery type

contracts (IDCs) and options. Although both DoD and private industry use IDCs and options; the DoD organizations surveyed use them on a much larger scale. This is primarily due to the fact that very few DoD organizations are able to use multiyear contracts. Therefore, in order to establish long-term contracts, without violating the Government's regulations concerning single year budgeting, most DoD procurement offices must use IDCs with option years or traditional one year base contracts with additional option years.

TABLE 3.8; LONG-TERM CONTRACT TYPES AND PRICING ARRANGEMENTS

WHAT TYPES OF CONTRACTS AND PRICING ARRANGEMENTS ARE YOU CURRENTLY USING ON YOUR LONG-TERM CONTRACTS?		
	DoD	Private Ind.
FFP	39%	63%
FFP w/ (EPA)	9%	20%
FPIF	4%	8%
FPAF	4%	0%
CPIF	8%	3%
CPAF	9%	0%
CPFF	17%	1%
CR (no fee)	2%	0%
(T&M) / (LH)	9%	5%

Part two of question ten was designed to ascertain why the organizations surveyed used the type of contracts and pricing arrangements they did with long-term contracts. Both DoD and private industry stated overwhelmingly that it is not the nature or length of the contract which "drives" the

contract type and pricing arrangement, but rather it is the type of material or service being procured and the associated risk that compels this decision.

4. Incentives

Questions eleven and twelve were designed to determine what types of incentives are used with long-term contracts. For example, question eleven asked respondents what types of incentives they offer their suppliers to accept long-term contracts and why. And question twelve asked respondents what types of incentives do suppliers ask for with long-term contracts and why. Specifically, these questions sought to determine if suppliers require incentives to accept long-term contracts, and if so what are the incentives used.

As shown by Tables 3.9 and 3.10, a significant percentage of buyers do not offer incentives and a significant percentage of sellers do not ask for them with long-term contracts. Many respondents, from both DoD and private industry, stated that in most cases incentives were not necessary with long-term contracts. They generally believed that the long-term agreement itself was the only incentive needed for a supplier to accept a long-term contract.

Another similarity, although intuitively obvious, is also highlighted by Tables 3.9 and 3.10. In particular, sellers generally ask for more incentives than offered by buyers.

TABLE 3.9; TYPES OF INCENTIVES OFFERED SUPPLIERS

WHAT TYPES OF INCENTIVES DO YOU OFFER YOUR SUPPLIERS TO ACCEPT LONG-TERM CONTRACTS AND WHY?		
	DoD	Private Ind.
Cost	11%	20%
Delivery	2%	2%
None	68%	36%
Other	4%	25%
Performance	11%	6%
Technical	4%	11%

TABLE 3.10; TYPES OF INCENTIVES SUPPLIERS ASK FOR

WHAT TYPES OF INCENTIVES DO YOUR SUPPLIERS ASK FOR WITH LONG-TERM CONTRACTS AND WHY?		
	DoD	Private Ind.
Cost	18%	25%
Delivery	4%	0%
None	55%	22%
Other	11%	34%
Performance	9%	8%
Technical	3%	11%

Although there were two similarities, there were also three major differences that surfaced in this section of the survey. First, the results of question eleven indicated that buyers from private industry were more likely to offer incentives than their counterparts in DoD. For instance, and as previously presented in Table 3.7, buyers from private industry are more likely to offer EPAs. Second, buyers from private industry were also much more willing to provide their suppliers with technical and engineering assistance. And

lastly, buyers from private industry were much more willing to offer their suppliers "other" incentives. In particular, many buyers from private industry said that they would guarantee suppliers future contracts (often without competition) for outstanding supplier performance. Some of the "other" incentives offered by private industry included provisions for prompt pay, and flexible pricing.

5. Unique Contracting Arrangements

Question thirteen asked respondents if they use any unique contracting arrangements, special contracting methods, or special contract clauses with long-term contracts. Results are shown in Table 3.11. Thirty percent of DoD organizations and 58 percent of companies from private industry responded affirmatively.

TABLE 3.11; USE OF UNIQUE CONTRACTING ARRANGEMENTS

DO YOU USE ANY UNIQUE CONTRACTING ARRANGEMENTS, SPECIAL CONTRACTING METHODS, OR SPECIAL CLAUSES TO REDUCE RISK WITH LONG-TERM CONTRACTS?		
	<u>DoD</u>	<u>Private Ind.</u>
Yes	30%	58%
No	70%	42%

This difference between DoD and private industry in the area of unique contracting arrangements is fairly significant. Some of the special contracting arrangements used by private industry respondents included renegotiation clauses to address over or under forecasted demands, special

payment terms, non-committal letters of intent for buying future supplies and services, guaranteed lowest price clauses, thirty day termination clauses, automatic extension clauses, formula pricing, liquidated damages clauses for late delivery, and guaranteed minimum and or not to exceed quantities.

Although the questionnaire found that DoD does not use unique contracting arrangements as often, in many cases however, DoD's special contracting arrangements are often more innovative than the ones used by the companies surveyed. For example, not only are DoD organizations using some of the above arrangements and clauses when allowed by Government regulations, and occasionally multiyear contracting, but a few DoD activities (primarily the Defense Logistics Agency, Navy Aviation Supply Office, and Navy Ships Parts Control Center) are also using the following logistical concepts in conjunction with their long-term contracting efforts:

- * Economic Order Quantities
- * Incremental Bidding
- * Procurement Group Coding
- * Multisource Contracting

a. Economic Order Quantities

10 U.S.C. 2384(a)(1) requires Government agencies to procure supplies in such quantities that will result in the total cost and unit cost most advantageous to the Government, when practicable, and that does not exceed the quantity

reasonably expected to be required by the agency. Although the current DoD economic order quantity (that quantity which minimizes total annual ordering costs and holding costs) does not necessarily represent the actual manufacturer's economic purchase quantity; this information can be solicited by the contracting officer via inclusion of FAR provision 52.207-4, Economic Purchase Quantity-Supplies, in solicitations for supplies. The provision requests the offeror to identify economic order quantities and quantity price information. In turn, this information coupled with the DoD EOQ model may alert procurement offices to the potential of a long-term contracting approach. [Ref. 20:p. II-4]

b. Incremental Bidding

Incremental bidding is a method that some DoD activities are currently using in order to acquire more than one year's requirements through the use of one solicitation and contract. Specifically, it provides a medium for offerors to quote a range of prices for different fixed quantities. As with economic order quantities, incremental bidding provides the contracting officer with valuable information concerning price and quantity combinations, and which in turn may result in the selection of a long-term, rather than a short-term procurement approach. [Ref. 20:p. II-6]

c. Procurement Group Coding

Procurement group coding or "family buying," is the concept of grouping together like items with similar

characteristics to achieve contracting efficiency and to reduce cost. It works like this: Requirements for materials having similar technical and manufacturing characteristics (which might be purchased from several vendors) are grouped together under one requirement. Grouping of similar items increases the dollar value of the solicitation, thereby increasing industry interest in the acquisition. And, because of the increase in requirements from grouping, a longer term contract is often better suited for this type of special contracting method than a single year contract.

d. Multisource Contracting

Under this approach, some DoD activities are using long-term contract types (e.g., IDCs and multiyear contracts), but with more than one vendor for the same item. Under IDC multisource contracting, placement of delivery orders may be based on performance as well as price. For example, once the guaranteed minimum quantities under an indefinite quantity contract have been ordered, an evaluation matrix may be used to determine which contractor will receive subsequent orders. Factors of the evaluation may include price, delivery performance, quality, management, etc. Another approach involves the combination of multisource/multiyear contracting for industrial mobilization. This approach combines multiyear contracting with the exception to full and open competition, in order to achieve adequate supplier availability in case of national emergency, as provided by 10 U.S.C. 2304(c)(3). This

authority allows the Government to divide current production requirements among two or more contractors, without competition, in order to provide for an adequate industrial base. [Ref. 20:p. II-13]

6. Barriers

The purpose of question fourteen was to determine if organizations face barriers in using a long-term contractual approach with suppliers, and if so what are the barriers, and what actions are being taken to reduce these barriers. As reported by Table 3.12, 69 percent of individuals from DoD and 58 percent of individuals from private industry said they faced barriers in using long-term contracts. The primary barriers cited (Table 3.13) by DoD respondents were changing requirements, CICA, "other," and single year budgeting. And, the primary barriers cited (also Table 3.13) by private industry respondents were changing requirements and "other."

Frequently, the private industry respondents stated that the "other" factors which impeded their use of long-term contracts were (1) often they are difficult to administer, (2) losers can be alienated, (3) frequent price changes, and (4) customer resistance. DoD "other" factors included the above, as well as (1) frequent changes in state of technology, (2) lack of authority to use multiyear contracting, (3) dollar authority thresholds, (4) cost and pricing requirements, and (5) resistance by the small business community.

Based on the literature review the researcher was not surprised that CICA and single year budgeting were mentioned as barriers to DoD long-term contracting efforts. However, the researcher was initially surprised by the number of DoD respondents which said that changing requirements and "other" factors impeded their use of long-term contracts, since these impediments were not discovered during the literature review.

TABLE 3.12; PERCENTAGE OF ORGANIZATIONS FACING BARRIERS

DO YOU FACE ANY BARRIERS WHEN USING LONG-TERM CONTRACTS TO PROCURE GOODS AND SERVICES?		
	<u>DoD</u>	<u>Private Ind.</u>
Yes	69%	58%
No	31%	42%

TABLE 3.13; TYPES OF BARRIERS FACED

IF YES, BRIEFLY DESCRIBE WHAT THEY ARE AND WHAT ACTIONS YOU ARE TAKING TO REDUCE THESE BARRIERS?		
	<u>DoD</u>	<u>Private Ind.</u>
Changing Requirements	24%	41%
CICA	21%	9%
Not Using Best Value	9%	0%
Other	23%	50%
Single Year Budgeting	23%	0%

Although both DoD and the companies surveyed from private industry face significant barriers, the research indicated that there are enough alternative contract types and methods available to get around most long-term contract impediments. For instance, although many DoD organizations

are not able to use multiyear contracting, they are still usually able to circumvent single year budgeting requirements via the use of options. In addition, IDCs are used quite frequently in conjunction with options when a long-term contracting approach is desired, but exact quantities are not firm. During follow-up telephone interviews, many DoD respondents said they like the flexibility that IDCs/options provided so much that they would probably not use multiyear contracting even if no-year or multiyear funds were available.

Although most of the respondents from private industry did not face regulatory or statutory barriers, they also frequently used options and indefinite delivery types of contracts.⁶ Another method used by private industry frequently to reduce long-term contracting barriers was to offer suppliers some type of single source guarantee for good performance. Additionally, commercial buying activities will often use flexible pricing arrangements, such as adjusting the contract price at time of contract extensions, in order to reduce the risk of price fluctuations.

7. General

Question fifteen asked the organizations whether they would like to see long-term contracts used more often and if so why? Results are shown in Table 3.14. Seventy-seven

⁶Some of the respondents from private industry said that CICA prevents them from establishing long-term contracts with subcontractors on DoD related work.

percent of DoD procurement offices and 92 percent of private industry procurement officials responded affirmatively.

TABLE 3.14; ADDITIONAL USE OF LONG-TERM CONTRACTS

WOULD YOU LIKE TO SEE LONG-TERM CONTRACTS USED MORE OFTEN?		
	<u>DoD</u>	<u>Private Ind.</u>
Yes	77%	92%
No	23%	8%

As can be seen from Table 3.14, the majority of respondents from both private industry and DoD say they would like to see long-term contracts used more often. Although there is a slight difference in percentages, it is probably not significant. A large portion of the DoD respondents which answered no said that they answered this way not because they were against using long-term contracts, but because they felt that their organizations were already using them to the full extent possible.

Additionally, there was very strong agreement by both populations on why they would like to see long-term contracts used more often. The most commonly cited reasons included (1) reduces product cost because of economies of scale, (2) reduces procurement and administrative lead time, (3) improves procurement buying efficiency, (4) establishes solid working relationships with suppliers, (5) assists just-in-time procurement efforts, and (6) often increases up-front competition.

The last question, question sixteen, was designed to determine characteristics of successful long-term contracts. The most frequently cited characteristic was the establishment of a cooperative relationship with suppliers that involved frequent and frank communication. For instance, one DoD organization conducts quarterly "working group" meetings involving key personnel from both the Government and private industry in order to identify and resolve potential problems. Other characteristics cited by both DoD and commercial buying activities were (1) early supplier involvement, (2) adequate requirement forecasts, (3) well thought out Statement of Works and clear requirements, (4) strong and active contract administration, (5) the selection of the right supplier, (6) the use of best value criteria in source selection, (7) options: because they provide buyers with a great deal of flexibility, and (8) the use of electronic data interchange in placing orders against long-term contracts.

C. SUMMARY

This chapter presented the results of the survey and follow-up interviews conducted for this study. The findings showed that from a conceptual standpoint, DoD's long-term contracting strategy is very similar to those of commercial buying organizations. However, when actually put into action, DoD does not always implement this strategy in the exact same manner.

For instance, both DoD and commercial buying organizations use long-term contracting regularly for recurring services and items (normally common and/or of a stable design), purchased on a repetitive basis, for the same primary reasons. In actual practice, however, the results indicated that not only is DoD more likely to utilize long-term contracts and to a greater degree than the companies surveyed, but that on the average, DoD contracts are of greater length.

Another example revolves around the use of contract types and pricing arrangements. Although both DoD and commercial buying organizations would prefer to use fixed-price type contracts with long-term agreements, in many cases DoD is unable to because the type of supplies and services they procure are either not suited to fixed-price contracts or indices are not available to adjust for fluctuations in costs. On the other hand, commercial buying organizations are able to enter into more flexible pricing arrangements. For example, they are often able to renegotiate prices during the term and at time of contract extensions without reliance on EPAs or other regulatory restrictions. Additionally, because of single year budgeting restrictions, DoD buying offices are much more likely to use IDCs and options.

Lastly, the study revealed that the respondents from private industry were more likely to offer their suppliers incentives and were also more apt to use unique contracting arrangements, special contracting methods, and special

contract clauses with long-term contracts. Again, this is not due to less desire or willingness by DoD, but rather is because commercial buying practices permit more flexibility than do Government procurement practices.

The next chapter will present the conclusions and recommendations on the findings that the researcher has developed.

IV. CONCLUSIONS AND RECOMMENDATIONS

A. BACKGROUND

Although there were no major revelations in the private and public long-term contracting practices identified during this study, some significant conclusions and recommendations can still be obtained. They have implications for DoD and other Government agencies which may want to improve their ability to utilize a long-term contracting approach.

B. CONCLUSIONS

In this section the researcher will answer the primary and subsidiary research questions originally posed for this study in Chapter I.

Primary Question:

To what extent is long-term contracting by DoD feasible (considering current Government procurement practices and regulations concerning competition and budgeting)?

The research indicated that DoD does in fact face more barriers than commercial buying organizations when using long-term contracts; however, there are enough contracting types and arrangements, contracting methods, and special clauses available to allow those DoD activities, which so desire, to establish long-term relationships with suppliers.

Although feasible, this does not mean it is easy to do so. In order to use a long-term contracting approach, a great deal of acquisition research and planning is required up-front, as well as spending additional time definitizing the terms, conditions, and price of the actual contract. This is especially true for Government agencies, which do not have the same degree of procurement flexibility as private buying organizations. However, in many cases, the additional time spent up-front for one long-term contract, will save countless hours of valuable procurement man-hours that would be needed to place multiple short-term contracts.

Subsidiary Questions:

- 1) What is long-term contracting?
- 2) What are the advantages and disadvantages of long-term contracts?
- 3) What are the major influences on long-term contracting?
- 4) In the Government, what are the long-term contract types available, long-term contract techniques available, and general impediments to long-term contracting?
- 5) What types of goods and services, contract types and pricing arrangements, incentives, and unique contracting arrangements lend themselves to long-term contracting?
- 6) What are the most common characteristics of successful long-term contracts?

Subsidiary Question # 1 - This question kept reappearing throughout the course of the study. Primarily this happened because there is no exact definition of a long-term contract, and therefore almost every procurement organization,

especially in DoD, has a different idea of exactly what it is. For example, some individuals normally do not include options as part of their definition for long-term contracts; while others do. Thus, for the purpose of the thesis, the researcher defined long-term contracts to be those contracts (including options) which are written to establish a buyer/seller relationship longer than traditionally expected (usually longer than one year) in a normal competitive environment. The aim of which is to cultivate a buyer/seller relationship which enhances the level of product or service quality expected by the buyer and delivered by the seller.

In addition, although an exact definition of long-term contracting does not exist, the researcher did find four characteristics of long-term contracting which appear universally accepted. They are: (1) long-term formal relationships, (2) partnerships, (3) winner-take-all contract awards, and (4) strategic source planning. Specifically, this means that most long-term type contracts are designed to establish cooperative formal relationships, characterized by mutual dependence and open communication, with a small number of high-quality suppliers, over a period of time longer than normally expected in traditional, competitive ways of doing business.

Subsidiary Question # 2 - Like almost every decision in life, there are pros and cons of that decision, and long-term contracting is no exception. For example, some of the

advantages of long-term contracting include improved problem solving, reduction of costs, improved quality, improved resource planning, increased supplier investment, and improved procurement efficiency. The primary potential disadvantages include loss of competition, becoming overly dependant on the other party, and alienation of losing suppliers.

The type of relationship that is most desirable really depends on the details of each specific procurement. However, when purchasing recurring services and supplies, with firm requirements, from a quality manufacturer, the advantages of a long-term contract can often outweigh its negatives.

Subsidiary Question # 3 - The research indicated that there have been many different factors which have encouraged the use of long-term contracting over the past ten or so years. Four major influences were identified in the literature review portion of the study (Chapter II). They are: (1) the concept of best value, (2) just-in-time production planning, (3) material requirements planning, and (4) total quality management. In each one of these concepts, long-term contracting plays a vital role in their success.

In addition, a fifth major factor was identified by the questionnaire responses. This factor is business downsizing. Both public and private organizations are facing labor force reductions and therefore are looking for ways to "accomplish more with less." And, in many cases, long-term contracts can do just this.

Subsidiary Question # 4 - The research indicated that there is one primary long-term contract technique available to DoD and other Government procurement activities. This technique involves the use of contract options. Again, a contract option allows the Government to order additional supplies or services under an existing contract and/or extend the term of an existing contract. And although not actually contract techniques, some DoD activities are using the following concepts which can alert users to the potential application of a long-term contracting approach: (1) use of economic order quantities, (2) incremental bidding, (3) procurement group coding, and (4) multisource contracting.

Additionally, the research showed that there are two primary long-term contracts available to Government procurement activities: (1) multiyear contracts and (2) indefinite delivery contracts. Unfortunately, multiyear contracts are used infrequently because of difficulty by some DoD offices to get no-year or multiyear funds and the fact that there is normally a high cancellation ceiling associated with multiyear contracts. IDCs, however, are used often by DoD and when coupled with a contract option allow Government activities to enter into a contract covering more than the basic requirements, without the cancellation liability of a multiyear contract.

The general impediments to long-term contracting in Government/DoD are (1) changing requirements, (2) CICA, (3)

single year budgeting, and (4) "other factors." The "other factors" cited, include difficulty to administer long-term contracts, frequent price and technology changes, alienation of losers, lack of authority to use multiyear contracts, dollar authority thresholds, cost and pricing requirements, and resistance by the small business community.

Subsidiary Question # 5 - The findings of the research showed that most recurring services and items (normally common and/or of a stable design) purchased on a repetitive basis, with firm requirements, were conducive to being procured on a long-term contract. Additionally, the questionnaire revealed that firm-fixed-price and fixed-price with economic price adjustment type clauses, in conjunction with IDCs and contract options, are the most common types of contracts and pricing arrangements used with long-term contracts. However, respondents from both DoD and commercial buying organizations asserted overwhelmingly that it is not the nature or length of the contract which "drives" the contract type and pricing arrangement, but rather it is the type of material or service being procured and the associated risk that compels this decision.

The results of the questionnaire also indicated that although private industry was more likely to offer their suppliers incentives than DoD, neither population uses them very often. Many respondents stated that in most cases incentives were not necessary with long-term contracts.

However, the types of incentives which were used occasionally are cost (e.g., EPA type clauses or cost related pricing incentives) and "other." The "other" incentives are used predominately by commercial buying organizations and include providing suppliers with technical and engineering assistance, guarantees for future work, provisions for prompt pay, and flexible pricing provisions.

Not only does private industry place greater emphasis on long-term contracting incentives, but they tend to use special contracting arrangements more often than DoD. Some of the special contracting arrangements, used by the private industry respondents, include renegotiation clauses to address over or under forecasted demands, special payment terms, non-committal letters of intent for buying future supplies and services, guaranteed lowest price clauses, thirty day termination clauses, automatic extension clauses, formula pricing, liquidated damages clauses for late delivery, and guaranteed minimum and or not to exceed quantities. DoD also uses some of the above special arrangements and clauses when allowed by Government regulations, as well as occasionally multiyear contracting, hybrid contracts, incremental bidding, procurement group coding, and multisource contracting.

Subsidiary Question # 6 - The most frequently cited characteristic of successful long-term contacts by respondents to the questionnaire was the establishment of a cooperative relationship with suppliers that involved frequent and frank

communication. Other characteristics mentioned by both DoD and commercial buying activities were early supplier involvement, adequate requirement forecasts, well thought out Statement of Works and clear requirements, strong and active contract administration, selection of the right supplier, the use of best value criteria in source selection, the use of options, and the use of electronic data interchange in placing orders against long-term contracts.

C. RECOMMENDATIONS

Although the results of the survey indicated that Government contracting policies and procedures concerning competition do not, from a bottom-line perspective, prevent DoD from using long-term contracts, this does not mean however, that DoD is not often impeded in its efforts to do so. As such, the researcher has developed five general recommendations that if implemented would assist DoD's and other Government procurement offices' long-term contracting efforts.

Recommendation # 1 - Senior procurement officials must make their employees aware of the various long-term contract types, techniques, and methods available in the Government, as well as their advantages and suitability for certain types of materials and services. In addition, they must encourage their employees to take the extra time needed up-front to properly definitize long-term contracts.

Recommendation # 2 - Government contracting practices should be modified in order to be in consonance with good commercial practices. For instance, some commercial buying groups combine a company's complete product line on a single award to maximize efficiency and minimize cost, regardless of whether the items are competitive or single source. Statutory and regulatory requirements for competition prohibit DoD activities from taking this approach. The researcher does not advocate that CICA should be eliminated, however. Competition should be pursued when it makes good business sense, but it should not be used just for the sake of competition.

Additionally and as discussed earlier, private industry often renegotiates prices during the term and at time of contract extensions without reliance on EPAs or other regulatory restrictions. Giving DoD this same degree of pricing flexibility would improve its ability to use long-term contracts significantly.

Recommendation # 3 - The practice of single year budgeting should be eliminated or at a minimum DoD should be given more leeway in using out-year funds. For example, private industry would prefer that DoD use true multiyear or multiple-year type contracts, rather than using contract options. Unfortunately, although IDCs and options give DoD a great deal of flexibility, suppliers are often not able to pass along any economies of scale because there is no assurance that the option will ever be exercised. This does not mean that

options and IDCs should not be used when future requirements are unknown, only that DoD activities should be given the freedom to use a multiple year type contract, if they so desire. Multiyear contracting was established to fill this void. However, in actual practice, very few DoD activities are able to obtain the no-year or multiyear funds required to use this long-term contract method.

Recommendation # 4 - DoD and other Government activities should be encouraged to use a best value procurement approach whenever it makes good business sense to do so. To shift the emphasis from price competition, it is important that suppliers recognize that something more than price will go into the source selection and that there will be an incentive provided for delivering a better product, even at a higher price. However, in order to do this, DoD must be able to adequately quantify non-price factors such as past performance, as well as to establish variable-incentive performance specifications (discussed in Chapter II), which would encourage suppliers to make acceptable cost/performance tradeoffs.

The Defense Systems Management College 1988-89 Research Fellows recommend that this could be done in three steps. They say that the first step in this process would be to establish an on-line contractor performance history that would be available to the contracting officer. The elements of the file should include indices for price, delivery, and reported

quality problems. Second, the ability to input and access the files throughout DoD must be established. A partial net will not be sufficient, since it will fail to provide the objective information needed eventually to make source selection. Third, once the network is functioning, quality factors should be established to adjust bid prices to reflect the associated value with variations in schedule, quality, or other performance features. [Ref. 1:p. 55]

Recommendation # 5 - DoD contracting activities should establish yearly acquisition plans which identify types of materials and services which lend themselves to being procured on a long-term basis, as well as to distinguish which types of long-term contract types, techniques, and methods are to be used. One possible method that could be used to identify material and services is a Pareto Analysis.

Not only should input be solicited in-house, but discussions should be held with suppliers. For example, in the area of procurement group coding, a supplier may be able to reveal a commonality in the items of the process which the buying office would or could not know. In addition to outside discussions with vendors, it is very important that the people or offices within DoD, that generate "requirements," also be involved in the planning process. As with computers, the output is only as good as the input. This philosophy holds true in long-term contracting as well. Sound acquisition

plans concerning long-term contracting can only be established if "requirements" are accurate.

D. SUGGESTIONS FOR FURTHER RESEARCH

Areas that merit consideration for further study include (1) establishing a unified Government/private industry definition for long-term contracts, (2) comprehensively reviewing the use of long-term contracting by one specific DoD or other Government activity, and (3) study the link between long-term contracts and supplier investment levels.

APPENDIX A

LCDR Greg Breen
Naval Postgraduate School
Code: SMC 1331
Monterey, CA 93943

Dear :

This is a letter of introduction and a request for assistance in a Master's Thesis research project on long-term contracting.

My name is Greg Breen and I am an active duty Naval Officer in the U.S. Navy Supply Corps and currently a student at the Naval Postgraduate School where I am working towards an M.S. in Acquisition and Contract Management.

My Master's Thesis research is focused on the use of long-term contracting by both public and private organizations. Specifically, my research goal is to determine the most common long-term contracting practices used by private and public procurement organizations. For the purpose of this thesis, long-term contracts are considered to be those contracts (including options) which are written to establish a buyer/seller relationship longer than traditionally expected (usually longer than one year) in a normal competitive environment. This contracting approach is intended to cultivate a buyer/seller relationship which enhances the level of product or service quality expected by the buyer and delivered by the seller.

I request that you take a few minutes to complete the enclosed survey and return it at your earliest convenience. If you are unable to answer this survey, please pass it on to someone who is. All of your responses will remain strictly confidential if you so choose. The survey results will be used for academic research analysis on establishing long-term contractual relationships with suppliers and for recommending Department of Defense procurement policy changes. I want to thank you in advance for your assistance.

Sincerely,

Greg Breen
LCDR, SC, USN

APPENDIX B

LCDR Greg Breen
Naval Postgraduate School
Code: SMC 1331
Monterey, CA 93943

SURVEY OF LONG-TERM CONTRACTING PRACTICES

This survey is designed to solicit information on your use of long-term contracts. The goal is to determine common long-term contracting practices used in private and public procurement organizations. Please take a few minutes to answer these survey questions. All questions should be answered from the buyer's perspective. You may remain anonymous and all answers will remain confidential if you wish. I would also appreciate a copy of any instructions, models, or guidance your organization has concerning long-term contracting (or multiple-year contracting). Thank you for your assistance.

Date:

Name of your Command, Activity, or Company:

Your name (optional):

Your office or section:

Your position:

Number of years in your current position:

Number of years you have worked in the acquisition field:

Phone number:

1) Do you wish your answers to remain confidential? Yes No

2) May I call you if I have questions? Yes No

3) Briefly describe your organization's primary business:

4) Does your organization use long-term contracts when purchasing goods and services? Yes No

If you answered no, briefly describe why not?

IF YOU ANSWERED NO TO QUESTION 4, PLEASE STOP AND RETURN SURVEY. YOU MAY MAIL IN THE ENVELOPE PROVIDED. THANK YOU FOR YOUR ASSISTANCE.

IF YOUR ANSWER TO QUESTION 4 IS YES, PLEASE CONTINUE.

5) What percent of the dollar value of your contracts for the procurement of goods and services are of a long-term nature?

- | | | |
|--------------|---------------|--------------|
| a. 0 to 20% | b. 21 to 40% | c. 41 to 60% |
| d. 61 to 80% | e. 81 to 100% | |

6) What percent of the number of your contracts for the procurement of goods and services are of a long-term nature?

- | | | |
|--------------|---------------|--------------|
| a. 0 to 20% | b. 21 to 40% | c. 41 to 60% |
| d. 61 to 80% | e. 81 to 100% | |

7) What is the average length of your long-term contracts?

- | | | |
|----------------------|----------------------|----------------------|
| a. > 1 but < 2 years | b. > 2 but < 3 years | c. > 3 but < 4 years |
| d. > 4 but < 5 years | e. 5 years or more | |

8) What types of goods and services are you currently contracting for on a long-term basis and why?

9) What types of goods and services would you like to see contracted for on a long-term basis and why?

10) What types of contracts and pricing arrangements are you currently using on your long-term contracts (e.g., FFP, FPIF, CPIF, IDCs, etc.) and why? In addition, are you using options?

11) What types of incentives do you offer your suppliers to accept long-term contracts (e.g., cost, technical, performance, delivery, other) and why?

12) What types of incentives do your suppliers ask for with long-term contracts and why?

13) Do you use any unique contracting arrangements (e.g., hybrid contracts), special contracting methods, or special clauses to reduce risk (e.g., EPAs) with long-term contracts?

Yes No

If yes, briefly describe what they are.

14) Do you face any barriers when using long-term contracts to procure goods and services? Yes No

If yes, briefly describe what they are and what actions you are taking to reduce these barriers?

15) Would you like to see long-term contracts used more often?
Yes No

If yes, briefly describe why?

16) Please briefly describe your most successful long-term contract and what made it so successful?

THIS IS THE END OF THE SURVEY. THANK YOU FOR YOUR TIME AND EFFORT. PLEASE MAIL SURVEY IN THE ENVELOPE PROVIDED.

APPENDIX C

LIST OF PRIMARY PRODUCTS OF PARTICIPATING COMPANIES

**Aerospace Products
Air Cargo Systems
Aircraft
Aircraft Components
Aircraft Engines
Aircraft Launching and Landing Systems
Automatic Test Equipment
Avionics
Computer Systems
Communication Systems
Digital Imaging Systems
Electric Power Systems
Electronics
Electronic Countermeasure Systems
Facilities Management Systems
Fasteners
Flight Control Systems
Gas Turbine Engines
Gear Boxes
General Business Products
Hydraulic Systems
Infra-Red Systems
Integrated Circuits
Metal Cutting Machines
Meteorological Equipment
Microwave Antenna Assemblies
Missile Systems
Pipes, Valves, and Fittings
Radar Systems
Satellite and Space Vehicle Systems
Semiconductors
Sensors
Undersea Systems
Video Teleconferencing
Weapon Systems
Windshield and Window Panels**

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